# Thomas Pierson

San Jose, CA / Albuquerque, NM | US Citizen | Previous AFRL Clearance
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## Education

**Carnegie Mellon University** — **Pittsburgh, PA**
*M.S. Mechanical Engineering* — *2026–2028*

**New Mexico Institute of Mining and Technology** — **Socorro, NM**
*B.S. Mechanical Engineering* — *2022–2026*
*Summa Cum Laude* | Rank 5 in Class | LANL & SNL Student Research Fellow

## Research Experience

**Robotic Laser Ultrasound for 3-D Structural Inspection**
*Los Alamos National Laboratory* — *2026*
– Neural Radiance Field (NeRF) with laser Doppler vibrometer to reconstruct 3-D acoustic images of complex structures; robotic path planning with non-contact LDV.

**ISS Guided Wave Structural Health Monitoring Payload**
*Intelligent Sensing and Structures Lab (NMT)* — *2024–present*
– Designed ISS payload for in-space guided wave experiments integrating 8 PMUTs; benchmarked 1-D CNN, Kalman filter, Hilbert envelope, and cross-correlation extraction methods.

**Optical and Ultrasonic Sensor Package**
*NASA Human Lander Challenge* — *2025*
– Led 4-person team; proposal accepted and funded $10k by NIA/NASA.

**Mechano-Luminescent Composite Sensor & ML Image Processing**
*Lab for Smart Materials and Structures (NMT)* — *2024–2025*
– 1-D CNN crack-detection with Keras on mechano-luminescent emission images; 97 % accuracy vs. digital image correlation.

## Work Experience

**Design Project Mentor** — **Kirtland AFB, NM**
*Air Force Research Laboratory, Space Vehicles Directorate* — *2024*
– Mentored 12-person intern team delivering 2 robotic arms; implemented point-cloud LiDAR mapping system.

**Teaching Assistant — MENG110 Robotic Design** — **Socorro, NM**
*Mechanical Engineering Dept., NMT* — *2023–2025*

**Robotics Consultant** — **Albuquerque, NM**
*MESA NM* — *2022–2024*

## Peer-Reviewed Publications

**2026**: **ASME-QNDE.** *Machine learning techniques in guided wave extraction for non-destructive evaluation.*

**2026**: SPIE SS/NDE. *Structural Health Monitoring Payload for the MISSE Platform on the International Space Station.*

**2025**: **ASEE Gulf-Southwest.** *Robotic Opportunities for Rural Communities.* DOI: 10.18260/1-2–55076.

## Technical Skills

**Perception & ML**: NeRF, CNNs, Keras/TensorFlow
**Coding**: Python, MATLAB, Arduino (C/C++), Raspberry Pi, LabVIEW,
**CAD / FEA**: SolidWorks, Inventor, Fusion 360, Onshape, ANSYS, COMSOL
**Fabrication**: PCB design (KiCad), machining, milling, 3-D printing, thin-film spin-coating

## Awards & Honors

**2025–26**: NASA HuLC Finalist — $10k awarded | NM AMP Undergraduate Research Scholar — $5k
**2023–24**: Sandia National Labs Sophomore Research Scholarship — $5k | Passed FE Exam
**2022**: NMT Gold Scholar — $5k/yr | Burger King Scholars — $1k